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COMMUNICATION FROM THE COMMISSION

Structural indicators

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EXECUTIVE SUMMARY

This Communication presents the list of indicators to be used in the synthesis report 2002. The purpose of this Communication is to present the new list of indicators for the synthesis report 2002. The Communication also describes the progress the Commission services have made over the last year on developing new indicators and improving the quality of last year's list of structural indicators.

The new list is stable compared to last year whilst retaining some flexibility. This is the second year in which the Commission has chosen a set of structural indicators. There have been limited changes to the list to ensure a high degree of **stability**. This is important for assessing progress in the achievement of objectives from one year to the next. This allows the reliability and the quality of the indicators to continue to be improved. However there has also been some **flexibility** in the list to incorporate indicators reflecting new political priorities or when better indicators have become available.

The list remains short and balanced between the domains. The list of indicators has also been kept **short**. A shorter list allows one to better focus the policy messages drawn from the indicators. The **balance** between the domains has been retained with six indicators for each of the five domains and five general economic background indicators.

The main change is a new domain on the environment. Reflecting the outcome of the Gothenburg European Council in June 2000 a new domain on the environment has been included in the list of structural indicators. This includes new indicators on climate change, sustainable transport, threats to public health and managing natural resources. New indicators have also been added on the gender pay gap, quality of work, science and technology doctorates and market structure in the network industries following work to develop these indicators.

Much progress has been made on developing and improving indicators. The Commission services have made good progress on developing new indicators and improving the quality of the existing indicators. Progress has been made in developing indicators in several areas: potential output, quality of work, marginal (and average) effective tax rate, knowledge economy, e-society, business demography, market structure in the network industries, company registration, social cohesion and the environment. From this work a total of nine new indicators have been added to the list. The Commission services will continue to develop indicators across a wide range of areas over the next year. Work on composite indicators for the knowledge economy should be completed before the 2003 synthesis report and the overall issue of composite indicators will be further examined.

STRUCTURAL INDICATORS

I. BACKGROUND

1. At the Lisbon Special European Council held in March 2000, the Union set itself the *“strategic goal for the next decade: to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion”* (paragraph 5 of the Council Conclusions). The Lisbon European Council acknowledged the need to regularly discuss and assess progress made in achieving this goal on the basis of commonly agreed structural indicators. To this end, it invited (paragraph 36): *“... the Commission to draw up an annual synthesis report on progress on the basis of structural indicators to be agreed relating to employment, innovation, economic reform and social cohesion.”*
2. In response to this request, the Commission on 27 September 2000 adopted a list of 35 structural indicators on the basis of which agreement with the Council was achieved. The structural indicators were used in the Commission synthesis report to Stockholm. The indicators proved useful for illustrating areas where more policy action was needed and for measuring the progress made in reaching the Lisbon goals.
3. The Stockholm European Council in March 2001 discussed, on the basis of the Commission’s synthesis report and the structural indicators *“how to modernise the European model and attain the Union's strategic goal for the next decade decided at Lisbon”* (paragraph 2). On the basis of this discussion several new priorities for the structural indicators were outlined at Stockholm. The Stockholm European Council called for an improvement in the monitoring of action in the field of social inclusion and asked for indicators on combating social exclusion to be agreed by the end of 2001. The Stockholm European Council also invited the Council and the Commission to develop indicators on the provision of care facilities for children, on the quality of work and to ensure that there are no discriminatory pay differentials between men and women.
4. At the Gothenburg European Council in June 2001 the European Council agreed *“a strategy for sustainable development which completes the Union's political commitment to economic and social renewal, adds a third, environmental dimension to the Lisbon strategy”* (paragraph 20). The Gothenburg conclusions highlighted four main areas of sustainable development: combating climate change; ensuring sustainable transport; addressing threats to public health; and managing natural resources more responsibly. As a result of the integration of sustainable development into the Lisbon process it was agreed that the Commission would *“evaluate implementation of the Sustainable Development Strategy in its annual synthesis report, on the basis of a number of headline indicators, to be agreed by the Council in time for the Spring European Council 2002”* (paragraph 25).

II. WORK IN PROGRESS

5. The Commission services' work on structural indicators since the Stockholm European Council has had three main directions:

- (i) to continue to improve the quality of the indicators in the list used for the 2001 synthesis report;
- (ii) to produce precise definitions and data for the agreed list of indicators to be developed; and
- (iii) to assess whether there is a need to modify the list of indicators taking into account the progress made on the indicators to be developed and the policy priorities identified at the Stockholm and Gothenburg European Councils.

6. Improving the quality of the indicators improves the robustness of any conclusions drawn from the data in the synthesis report. Eurostat has been working with the other Commission services and with Member States' national statistical offices to improve the quality of the indicators in the list. Eurostat has carried out quality assessments on each of the indicators looking at several aspects of quality such as timeliness, relevance, comparability, coverage of countries and length of time series. Since February 2000 improvements have already been made to about two thirds of the structural indicators. As regards dissemination of the data Eurostat has constructed a publicly accessible internet site containing all the available data from 1991 to 2000 on the structural indicators used in the 2001 synthesis report.

7. This Communication represents the main outcome of the Commission's work on structural indicators over the last year. Section III sets out the main principles for the new list of indicators. Section IV presents the new list of structural indicators and explains why new indicators have been included in this year's list and why certain indicators have had to be dropped. Finally section V describes the progress made by the Commission services in developing new indicators since last year. More details and the new list of indicators to be developed are presented in annex 3.

III. PRINCIPLES FOR THE NEW LIST OF INDICATORS

8. This is the second year in which the Commission has chosen a set of structural indicators. There is a high degree of **stability** in the list of indicators in order to allow for the measurement of progress over time as requested by the Council. This stability is also appropriate as most structural problems usually show quite some persistence. At the same time this allows for a process of continuous improvement of the indicators in terms of reliability and quality. Changing the indicators from year to year would render this task much more difficult for both Eurostat and national statistical offices.

9. There has also been **flexibility** in the list of indicators as new priorities have been identified and improved indicators have become available. However, this has been balanced by the need for a sufficient degree of stability to ensure that a consistent and well founded assessment of the progress towards the Lisbon and Gothenburg objectives in each year's synthesis report can be made.

10. The most fundamental change to the list of structural indicators this year has been to include a fifth domain on the **environment**. The indicators in this domain cover the four main

aspects highlighted by the Gothenburg European Council (namely combating climate change; ensuring sustainable transport; addressing threats to public health; and managing natural resources more responsibly).

11. The list of indicators should be kept **short** in order to send clear, simple and focussed policy messages but it should also be **balanced** to reflect the equal importance that Lisbon and Gothenburg placed on the domains of employment, innovation and research, economic reform, social cohesion and the environment. To that end, this Communication presents 36 indicators, a number which is almost unchanged from last year even though a new domain on the environment has been integrated into the list. There are 6 indicators in each domain to ensure that each policy domain can be covered in equal depth.

12. Any new indicators should be taken from the set of indicators which the Commission services have been developing since Stockholm. In addition, these new indicators should be drawn from the different indicator and benchmarking processes going on at the sectoral level. It is important to ensure the consistency between these sectoral processes and the overarching structural indicators.

13. Any new indicators should also meet the criteria used for the original choice of indicators. The indicators should be (1) easy to read and understand; (2) policy relevant; (3) mutually consistent; (4) timely available; (5) comparable across Member States and as far as possible with other countries; (6) selected from reliable sources; and (7) should not impose too large a burden on Member States and respondents.

14. Finally, the structural indicators will not cover the **candidate countries** in the 2002 synthesis report. However Eurostat are already working in conjunction with the statistical offices in the candidate countries to improve the availability and quality of the structural indicators for these countries. This work should ensure that the candidate countries can be included in the structural indicators from 2003 onwards as requested by the Gothenburg European Council.

IV. THE NEW LIST OF INDICATORS

15. The new list of indicators has been drawn up in accordance with the principles set out above. In total nine indicators have been added to the list and eight indicators dropped. Most of these changes were required by the addition of the new domain on the environment. In this way, the three dimensions of sustainable development (social, economic, environmental) are reflected in the whole set of indicators.

16. The list also includes new indicators where there has been sufficient progress on developing the data such as the “market structure in the network industries” and where new political priorities have arisen such as the “gender pay gap” and the “quality of work”. Whenever new indicators have been added to the list they have had to fulfil the quality criteria set out in section III above.

17. With the inclusion of new indicators it has been necessary to drop some indicators from last year’s list. This has been a difficult process as last year’s indicators were chosen on the basis of strict quality criteria as well. However, the indicators were dropped when they had become less politically relevant compared to the new indicator entering the list, when the indicator duplicated to some extent another indicator in the list or in one case when doubts about the quality of the data had emerged.

General Economic Background

18. The general economic background indicators illustrate the overall economic context in which the structural reforms are taking place. In the new list the indicator on **general government debt** has been dropped because it duplicates to some extent the indicator “public balance” which is also a measure of budgetary developments. The indicator on **energy intensity of the economy** has been moved to the domain on the environment as it provides a more convenient location for this indicator. The indicator **unemployment rate** has been moved from the domain employment to the general economic background indicators (see paragraph 23 below).

Employment

19. The employment indicators address several of the key aims of the Lisbon European Council namely: to strengthen employment in the Union; the importance of equal opportunities for men and women; and the importance of an “Active Employment policy” such as focussing on life-long learning.

20. In the new list, the indicator **gender pay gap** has been added following the request of the Stockholm European Council to develop indicators “*to ensure that there are no discriminatory pay differentials between men and women.*” In order to obtain further information to analyse the pay differentials between men and women, further work will be undertaken on gender pay data adjusted by factors such as age, education / skill level, occupation, experience and sector.

21. In the new list an indicator on the **quality of work** has been added in response to the emphasis put on this issue by the Stockholm European Council. The particular indicator on accidents at work has been chosen because health and safety conditions at work are a fundamental aspect of the quality of work, as noted in the Commission Communication “Employment and social policies: a framework for investing in quality”¹. But other indicators of quality of work, such as “life-long learning”, were already included in the list of structural indicators.

22. The **female employment rate** has been merged with the employment rate because it was decided for the synthesis report to disaggregate by gender all the employment and unemployment rates. This avoids the two indicators duplicating one another. Disaggregation by gender could also be envisaged for other structural indicators, such as the social cohesion indicators, provided that robust data exist. This issue has to be investigated further.

23. The **unemployment rate** has been moved to the general economic background as it is a commonly used indicator of the economic climate. It was therefore considered more appropriate to include the unemployment rate with the other general economic background indicators such as GDP growth and inflation to illustrate the overall economic context in which the structural reforms are taking place.

¹ (COM(2001)313 final)

24. The definition of **the tax rate on low wage earners** has been changed to the family type: “a single person earning 67% of the average production worker’s wage”². This family type is more suitable for assessing an employer’s disincentives / incentives to hire labour as created by the tax system because employers hire individuals without regard to their family status and because there is not much variation in taxes and social security contributions according to family type. Moreover the threshold of 67% of the average production worker’s wage better reflects this indicator’s focus on single low wage earners than a married couple family type with one partner working and earning 100% of the average production worker’s wage.

Innovation and Research

25. The innovation and research indicators measure Lisbon’s emphasis on the transition to a knowledge-based economy through better policies for R&D, education and the information society.

26. In the new list an indicator has been added on **science and technology doctorates**. In the knowledge-based economy the availability of high quality human resources is essential for the generation and diffusion of knowledge. New PhD graduates in science and technology measures the future capacity of human resources in creating, disseminating, understanding and using new knowledge.

27. The indicator on **ICT expenditure** has been dropped from last year’s list because since the last Communication doubts have arisen about the quality of the data and the results the indicator provided. For example the indicator is too broadly defined to be a good indicator of investment in ICT as it mixes expenditure on investment and consumer ICT products. This can make the comparison between countries somewhat misleading, given that investment in ICT arguably has more bearing on the future development of the knowledge-based economy. In particular some Member States with relatively high consumer spending would seem to compare favourably with other Member States where spending levels are similar but more investment-oriented. However as ICT investment is an important indicator it has been included in the new list of indicators to be developed (see annex 3).

28. The indicator on **exports of high technology products** has also been deleted from the list. Whilst this indicator is a useful measure of a countries’ comparative advantage in innovative industries it can be criticised on the basis that the choice of which products constitute high-tech products has to be somewhat arbitrary and at the theoretical level not all countries will wish to specialise in high-tech exports if their comparative advantage lies elsewhere.

29. In the area of innovation and research progress has already been made in developing composite indicators aimed at measuring the European Union’s transition towards a knowledge-based economy. In particular work on two composite indicators on “investment in the knowledge-based economy” and “performance in the transition towards the knowledge-based economy” is being completed.

² The previous definition was the tax rate applied to a married couple (where there is only one working spouse earning 100% of the average production worker’s wage) with two children (both between five and twelve years of age).

Economic Reform

30. The indicators on economic reform respond to the Lisbon European Council's emphasis on product and capital market reform. They look at market integration, progress in liberalising the network industries and possible distortions in the functioning of product markets caused by public intervention.

31. An indicator on the **market structure in network industries** has been added in the new list to measure the degree to which liberalisation has increased competition in the network industries. The indicator chosen measures the extent to which the market share of the incumbent (the pre-liberalisation monopolist) has fallen in response to the entry of new competitors. This indicator complements the indicator on prices in the network industries by providing some explanation for the evolution of prices. Further work to improve the quality of this indicator is necessary, and this will require close co-operation with Eurostat and the National Statistical Institutes to improve the coverage and comparability of the data³.

32. The indicator on **trade integration** has been deleted from the new list because although it is a very useful measure of market integration it does to some extent duplicate the information contained in the indicator "relative price levels". **Business investment** has been deleted from the new list because it is not a direct measure of progress in economic reform and hence is less policy relevant.

Social Cohesion

33. The social cohesion indicators provide measures of the degree and persistence of poverty and income dispersion and the associated risk of social exclusion in accordance with the Lisbon European Council's high priority on social cohesion. The Stockholm European Council also called for an improvement in the monitoring of action on social inclusion.

34. The indicator on **jobless households** has been dropped because whilst it measures the extent to which whole households might be at risk of poverty and social exclusion due to a lack of employment it duplicates somewhat the information provided by the indicators "poverty rate" and "persistence of poverty".

Environment

35. A set of 6 new indicators on environmental protection has been included in the new list of indicators in response to the Gothenburg European Council conclusions. Two indicators have been included on combating climate change. **Greenhouse gases emissions** has been selected as there is scientific evidence that increases in the atmospheric concentration of greenhouse gases (due mainly to human activities) give rise to climate change. Heating, services, industry and transport – together with their requirements on power production and oil refining – use the bulk of fossil fuels and result in consequent greenhouse gas emissions. The **energy intensity of the economy** is included because improved energy efficiency is essential in climate change policy.

36. Two indicators have been included on sustainable transport. The **volume of transport to GDP** monitors the decoupling of transport growth and real GDP growth, which is an objective of the sustainable development strategy. Two time series are presented one for

³ The inclusion of this indicator is conditional on the data being provided by the Member States.

freight and one for passenger transport. Work is under way in order to improve these indicators so that they report more accurately vehicle movements which provide a better measure of the effect on sustainable development. The **modal split of transport** monitors the shift from road and air to rail, water and public transport which is an objective mentioned in the Gothenburg European Council conclusions on the sustainable development strategy.

37. **Urban air quality** has been selected as an indicator reflecting one of the environmental threats to public health. Clean air in cities, where almost 80% of the European population live, is an important determinant of public health. The indicator is based on the average number of days for which selected air pollutants exceed fixed levels in urban areas.

38. One indicator has been included on managing natural resources more efficiently. The indicator on **municipal waste collected, landfilled and incinerated** reflects society's production and consumption patterns. The objective of managing natural resources more responsibly should be reflected in diminishing the amount of waste and in maximising recovery and reuse. At present the data availability is poor for an indicator on recovery and reuse, but the coverage will be improved in the future.

V. INDICATORS UNDER DEVELOPMENT

39. In last year's Commission Communication on structural indicators 13 indicators to be developed were presented. Since the Communication was published in September 2000 and especially since the Stockholm European Council in March 2001 the Commission services have made a lot of progress in developing indicators.

40. To ensure that the Commission's resources were not spread too thinly it was decided to focus attention on developing indicators in the following areas: potential output, quality of work, marginal (and average) effective tax rate, business demography, knowledge economy, e-society (in particular e-government), company registration, market structure in the network industries, social cohesion and protection of the environment. These areas were chosen on the basis of the priorities identified in last year's Commission Communication and those stressed by the Council of Ministers. In particular, indicators are being developed in accordance with the priorities of the Stockholm and Gothenburg European Councils in areas such as quality of work, childcare, discriminatory pay differentials between men and women and especially sustainable development. A summary of the progress made in each of the areas is provided in annex 3.

41. The Commission is also considering an approach based on composite indicators. Such indicators are already used in some of the more detailed sectoral processes such as the Innovation Scoreboard. Composite indicators are calculated by weighting together a set of well chosen constituent indicators to provide a summary of each Member State's progress in a particular policy domain. Composite indicators would have the advantage of providing a broader coverage of information than can be included in the current list of structural indicators and they would also allow for a reduction in the number of indicators presented in the list. However, because composite indicators invite strong policy messages to be concluded they need to be robust and based on a sound methodology. More work is therefore necessary to develop such indicators, to examine how they could be integrated into the list of structural indicators and to assess the consistency of the policy messages they send.

ANNEX 1 - INDICATORS FOR THE SYNTHESIS REPORT 2002

List of 36 structural indicators for the synthesis report 2002
<p>General economic background</p> <ul style="list-style-type: none"> a. GDP per capita (in PPS) and real GDP growth rate b. Labour productivity (per person employed and per hour worked) c. Unemployment rate d. Inflation rate e. Real unit labour cost growth f. Public balance
<p>I. Employment</p> <ul style="list-style-type: none"> 1. Employment rate (total and by gender) 2. Employment rate of older workers 3. Gender pay gap 4. Tax rate on low-wage earners 5. Life-long learning (adult participation in education and training) 6. Accidents at work (quality of work)
<p>II. Innovation and research</p> <ul style="list-style-type: none"> 1. Public expenditure on education 2. R&D expenditure 3. Level of Internet access 4. Science and technology doctorates 5. Patents 6. Venture capital
<p>III. Economic Reform</p> <ul style="list-style-type: none"> 1. Relative price levels and price convergence 2. Prices in the network industries 3. Market structure in the network industries 4. Public procurement 5. Sectoral and ad hoc State aid 6. Capital raised on stock markets
<p>IV. Social Cohesion</p> <ul style="list-style-type: none"> 1. Distribution of income (income quintile ratio) 2. Poverty rate before and after social transfers 3. Persistence of poverty 4. Regional cohesion 5. Early school-leavers not in further education or training 6. Long term unemployment
<p>V. Environment</p> <ul style="list-style-type: none"> 1. Greenhouse gases emissions 2. Energy intensity of the economy 3. Volume of transport (tonnes and passenger km) relative to GDP 4. Modal split of transport 5. Urban air quality 6. Municipal waste

New indicators are marked in bold.

ANNEX 2 – SUMMARY OF CHANGES TO THE LIST OF STRUCTURAL INDICATORS

Indicators added to the list	Indicators deleted from the list
General Economic Background	General Economic Background 1. General government debt
I. Employment 1. Accidents at work – fatal and serious (quality of work) 2. Gender pay gap	I. Employment 2. Employment growth 3. Female employment rate (merged with employment rate)
II. Innovation and Research 3. Science and technology doctorates	II. Innovation and Research 4. ICT expenditure 5. Exports of high-technology products
III. Economic Reform 4. Market structure in the network industries	III. Economic Reform 6. Trade integration 7. Business investment
IV. Social Cohesion	IV. Social Cohesion 8. Jobless households
V. Environment 5. Greenhouse gases emissions 6. Volume of transport (tonnes and passengers x km) divided by GDP 7. Modal split of transport 8. Urban air quality 9. Municipal waste	V. Environment

Note: The “unemployment rate” has been moved from employment to general economic background. “Energy intensity of the economy” has been moved from general economic background to environment.

ANNEX 3 – INDICATORS UNDER DEVELOPMENT

1. Since last year's Communication on structural indicators was published in September 2000 and especially since the Stockholm European Council in March 2001 the Commission services have made a lot of progress in developing indicators.
2. This annex describes the progress made in the areas on which the Commission services have focussed their attention: potential output, quality of work, marginal effective tax rate, business demography, e-society, company registration, market structure in the network industries, social cohesion and sustainable development. This annex also presents the new list of indicators to be developed.
3. The Commission services are also considering the development of composite indicators. Progress is under way in the domain of innovation and research on two composite indicators: "investment in the knowledge-based economy" and "performance in the transition towards the knowledge-based economy" and work should be completed before the 2003 synthesis report. More work is necessary to assess the robustness of the composite indicators, to examine how they could be integrated into the list and to assess the consistency of the policy messages they send.

General Economic Background

4. In the Commission services' work on estimating an indicator of **potential output**, a production function approach is preferred to a statistical approach. However, whilst a consensus is emerging on the exact methodology no indicator will be available in time for the 2002 synthesis report.

Employment

5. An extensive list of indicators on the **quality of work** have been developed for the Laeken European Council as part of a parallel process. One of these indicators, "life-long learning", was already included in last year's list. Four more indicators have been proposed for the structural indicators this year and the indicators on "accidents at work – fatal and serious" and the "gender pay gap" have been included in this year's list of structural indicators. In order to obtain further information to analyse the pay differentials between men and women, further work will be undertaken on gender pay data adjusted by factors such as age, education / skill level, occupation, experience and sector.
6. Indicators on the "**marginal effective tax rate**" and the "average effective tax rate" are being defined, building on technical support from the OECD. These indicators aim in particular at identifying poverty and unemployment traps respectively. However data for 1999 are not expected to be available in time for the synthesis report 2002.

Innovation and Research

7. Three indicators have been developed on the **e-society**. To complement the existing indicator on the level of internet access, a first set of data for “pupils access to online computers” was released in June 2001. Since over 90% of EU schools are now connected to the Internet, this new indicator will measure more accurately the real level of pupils’ access to the Internet. The second indicator “E-government” is defined as the average percentage use of 20 basic public services available online. As the final survey results for this indicator will not be available until November 2001 it has not been possible to assess the quality of the data or to include it in this year’s synthesis report. E-government has therefore been included as an indicator to be developed. Pilot data for the indicator “the percentage of turnover carried out by e-commerce” (covering both B2B and B2C e-commerce) will be available in October 2001 with full data for the year 2001 available in September 2002. So again it has not been possible to include this indicator in the synthesis report, but it has been included as an indicator to be developed.

Economic Reform

8. As regards the **market structure in network industries** data has been collected from the Commission services and, via Eurostat, the national statistical offices. The quality of the data varies from industry to industry and by the exact definition of the indicator chosen. However enough data of sufficient quality should be available for the “the market share of the incumbent” to be included as an indicator in the list. Further work to refine the quality of indicators in this area in close co-operation with Eurostat and the National Statistical Institutes will be necessary in the future.

9. As regards **business demography**, harmonised data on “enterprise births” and the “survival rates of newly-born enterprises” covering most Member States should be available by late 2002, with all Member States covered by 2003. Due to technical difficulties data on “enterprise deaths” will not be available until the 2004 synthesis report.

10. Indicators on **company registration** are being developed as part of the Best procedure under the Multi-annual Programme for Enterprise and Entrepreneurship. Data from this exercise on “the time required to register a private limited company”, “the cost of registering a private limited company”, “the total number of procedures in the registration of a private limited company” and the “minimum capital requirements for the registration of a private limited company” should be available in March 2002.

Social Cohesion

11. The Social Protection Committee has emphasised the multi-dimensional aspect of social exclusion. Work is underway to develop adequate indicators on, for instance, health and socio-economic status, housing and living conditions. Moreover progress has been made in collecting more up to date data from the European Community Household Panel (ECHP). Data for 1998 will be the latest year available for the synthesis report 2002, shortening the time lag by one year compared with last year. In the future, such indicators will be based on the new “Statistics on Income and Living Conditions” (EU-SILC) which is expected to provide data only 2 years old. Furthermore indicators on childcare are being developed, for example by revising the EU Labour Force Survey questionnaire, but data will not be ready for the Synthesis Report 2002.

New list of indicators to be developed

12. The previous section described the areas where significant progress has been made over the last year. This section presents the new list of indicators to be developed as set out below. This new list consists of indicators which are retained from last year's list because although there has been considerable progress in developing these indicators they were not ready in time to be considered for inclusion in this year's list. This was the case for potential output, marginal effective tax rate, business demography, e-commerce and company registration. Some of the other indicators are retained from last year because little progress was made due to the fact that the Commission services had to restrict their attention to developing a manageable number of indicators.

13. A new indicator to be developed have been added on **childcare facilities** reflecting the request of the Stockholm European Council for indicators to be developed on this issue. An indicator on **e-government** has been added to reflect the political priority given to this indicator by the Internal Market Council, and a lot of progress has already been made in developing this indicator. The indicator **ICT investment** has been added to the list of indicators to be developed because of the technical problems which have meant the indicator ICT expenditure had to be dropped from the list of indicators. **Financial integration** has been included reflecting the need for a better indicator of financial market integration than "capital raised on stock markets" which is strongly influenced by the economic cycle. Six indicators to be developed are proposed for the new domain on the **environment**. This reflects the recent addition of this domain to the structural indicators and the relatively under-developed nature of indicators on the environment compared to the other domains. Within this domain the indicator on **disability-free life expectancy** reflects the fact that good health is vital for a productive, satisfying and independent life.

List of indicators to be developed
Composite indicators
General economic background <i>1. Potential output</i> 2. Total factor productivity
I. Employment 3. Vacancies <i>4. Quality of work</i> <i>5. Marginal (and average) effective tax rate</i> 6. Childcare facilities
II. Innovation and research 7. Composite indicators on the knowledge-based economy 8. Public and private expenditure on human capital <i>9. E-commerce</i> <i>10. E-government</i> 11. ICT investment
III. Economic Reform <i>12. Business demography</i> <i>13. Company registration</i> 14. Cost of capital 15. Financial integration
IV. Social Cohesion Indicators will continue to be developed by the Social Protection Committee and the Commission services.
V. Environment 16. Consumption of toxic chemicals 17. Disability-free life expectancy 18. Biodiversity 19. Resource productivity 20. Recycling rate of selected materials 21. Generation of hazardous waste.

Indicators where progress has been made are marked in italics.

ANNEX 4 – Definition, Source, Availability and Policy Objective behind the Selected Indicators

General Economic Background Indicators

Indicator	Definition	Source	Availability*	Overall policy objective
a. GDP per capita in PPS and real GDP growth rate	GDP per capita in Purchasing Power Standard (PPS) Growth rate of GDP at constant prices (base year 1995)	Eurostat; National Accounts.	<i>Coverage:</i> all MS, US and Japan <i>Time series:</i> 1991-2000.	Growth performance, standard of living.
b. Labour productivity	GDP in PPS per person employed GDP in PPS per hour worked relative to the EU15 (EU15=100)	Eurostat; National Accounts and OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2000.	Overall efficiency of the economy.
c. Unemployment rate	Total unemployed individuals as a share of the total active population. Harmonised series. (Total, female and male population.)	Eurostat; Unemployment Statistics.	<i>Coverage:</i> All MS, US and Japan. <i>Time series:</i> 1991 – 2000	Full employment. Combating social exclusion.
d. Inflation rate	Annual percentage change in Harmonized Index of Consumer Price (HICP) (annual average)	Eurostat; Price statistics.	<i>Coverage:</i> HICP for all MS. US and Japan data are not strictly comparable. <i>Time series:</i> 1991-2000	Sound macroeconomic environment.
e. Real unit labour cost growth	Growth rate of the ratio: compensation per employee in current prices divided by GDP per total employment in current prices	Eurostat; National Accounts.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2000	Sound macroeconomic environment.
f. Public balance	Net borrowing / lending of central government, state government, local government, and social security sub-sectors as percentage of GDP.	Eurostat, OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2000	Sound macroeconomic environment.

* "Time series" describes those years for which data are available in most of the Member States.

(I) EMPLOYMENT

Indicator	Definition	Source	Availability	Overall policy objective
1. Employment rate (total and by gender)	Employed persons aged 15-64 as a share of the total population aged 15-64. (Total, female and male population.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. <i>Time series:</i> 1991 – 2000	Full employment.
2. Employment rate of older workers	Employed older (aged 55-64) workers as a share of total population aged 55-64. (Total, female and male population.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. <i>Time series:</i> 1991 – 2000	Full employment. Combating social exclusion.
3. Gender pay gap	Ratio of women's hourly earnings index to men's for paid employees at work for 15 or more hours per week.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS. No data for US and Japan. <i>Time series:</i> 1995-97	Combating gender discrimination.
4. Tax rate on low-wage earners	Income tax plus employee and employer contributions less cash benefits as a percentage of labour costs for a low-wage earner (single person without children with a wage of 67% of the average production worker's wage).	OECD; Fiscal Affairs Statistics (for the APW work)	<i>Coverage:</i> All MS, US and Japan. <i>Time series:</i> 1991-99, estimates for 2000.	To measure the tax pressure on labour, especially the low-paid and the relatively unskilled.
5. Lifelong learning (adult participation in education and training)	Percentage of population, aged 25-64, participating in education and training. (Adult participation in training over the 4 weeks prior to the survey).	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. F, NL, P use non-harmonised methodologies. <i>Time series:</i> 1992 – 2000	Full employment. More and better jobs.
6. Accidents at work – fatal and serious (Quality of work)	Number of accidents at work (fatal and serious) per 100 thousand persons in employment.	Eurostat; European Statistics on Accidents at Work (ESAW).	<i>Coverage:</i> All MS. <i>Time series:</i> 1994-98	Quality of work.

(II) INNOVATION AND RESEARCH

Indicator	Definition	Source	Availability	Overall policy objective
1. Public expenditure on education	Total public expenditure on education as a percentage of GDP.	Joint Unesco / OECD / Eurostat questionnaire.	<i>Coverage:</i> all MS. <i>Time series:</i> 1995-98 (1999 data available by early 2002).	Quality of human resources.
2. R&D expenditure	Total R&D expenditure, broken down by business enterprise sector (BERD) and others (GERD – BERD) as a percentage of GDP.	Eurostat questionnaire compiled by the Member States	<i>Coverage:</i> all MS (except Luxembourg), US and Japan. <i>Time Series:</i> 1991-99 (1998 and 1999 for most MS).	R&D effort.
3. Level of internet access	Percentage of households who have internet access at home.	Eurobarometer Survey	<i>Coverage:</i> All MS, US and Japan. <i>Time Series:</i> 1999-2001 (6 months frequency).	Information society.
4. Science and technology doctorates	Total new science and technology doctorates per 1000 of population aged 25 to 34 years.	Joint Unesco / OECD / Eurostat questionnaire.	<i>Coverage:</i> All MS, except EL and LUX. Data for US and Japan. <i>Time Series:</i> 1997-99	Quality of human resources.
5. Patents	Number of European and US patents per million inhabitants (EPO and USPTO patents)	European Patent Office (EPO) and US Patent Office (USPTO).	<i>Coverage:</i> All MS, US and Japan. <i>Time Series:</i> 1991-99 (provisional data for 2000).	Innovation capacity.
6. Venture Capital	Venture capital investments (i.e. private equity minus buyouts), relative to GDP. Breakdown by investment stages.	European Venture Capital Association (for EU), Price Waterhouse Coopers (for US).	<i>Coverage:</i> All MS (no data for Luxembourg), US, but not Japan. <i>Time series:</i> 1991-2000	Access to finance, in particular for start-ups.

(III) ECONOMIC REFORM

Indicator	Definition	Source	Availability	Overall policy objective
1. Relative price levels and price convergence.	Relative price levels of private final consumption including indirect taxes (EU=100).	Eurostat / OECD (price statistics: PPP indicators)	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-98 for MS. 1993 and 1996 for US and Japan plus estimates for other years. Estimates for 1999 and 2000.	Product market integration. Market efficiency.
2. Prices in the network industries	Price level and evolution in the telecommunications, electricity and gas markets.	Eurostat; Energy statistics. DG INFSO for telecommunications data.	<i>Coverage:</i> all MS. Some US and Japan data for telecommunications. <i>Time series:</i> 1992-2001 for electricity and gas. 1997-2000 for telecommunications.	Market efficiency
3. Market structure in the network industries	Market share of the incumbent in the fixed and mobile telecommunications markets. Market share of the largest generator in the electricity market.	Commission study for electricity. DG INFSO for telecommunications data.	<i>Coverage:</i> all MS except DK, and D for fixed telecoms, all MS for mobile telecoms, all MS except L for electricity <i>Time series:</i> 1997-99 for fixed telecoms, 2000 for mobile telecoms.	Market efficiency
4. Public procurement	Value of public procurement which is openly advertised as a percentage of GDP.	DG MARKT; Eurostat	<i>Coverage:</i> all MS. No comparable data for US or Japan. <i>Time series:</i> 1993-2000	Product market integration
5. Sectoral and ad hoc State aid	State aid (sectoral and ad hoc) as a percentage of GDP.	DG COMP	<i>Coverage:</i> all MS. No US or Japan data. <i>Time series:</i> 3-year averages from 1990-92 to 1997-99.	Distortions in the Single Market
6. Capital raised on stock markets	Capital raised on stock markets as a percentage of GDP.	Fédération Internationale des Bourses de Valeurs (FIBV).	<i>Coverage:</i> All MS, US and Japan. <i>Time series:</i> 1991-2000	Growth financing

(IV) SOCIAL COHESION

Indicator	Definition	Source	Availability	Overall policy objective
1. Distribution of income (income quintile ratio)	Ratio of the total income received by the 20% of the country's population with the highest income to that received by the 20% of the country's population with the lowest income. The income distribution is calculated using the equivalised total income.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS. No data on US and Japan. <i>Time series:</i> 1995-97.	Combating poverty and social exclusion
2. Poverty rate before and after social transfers	Share of population below the poverty line before and after social transfers. Poverty line defined as 60% of the median-equivalised income.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS. No data on US and Japan. <i>Time series:</i> 1995-97.	Combating poverty and social exclusion.
3. Persistence of poverty	Share of population continuously below the poverty line for three consecutive years.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS except B, FIN and S. No data for US and Japan. <i>Time series:</i> 1996-97	Combating poverty and social exclusion.
4. Regional cohesion	Coefficient of variation of GDP per capita in PPS across regions (NUTS 3 level) within countries.	Eurostat; Regional Statistics.	<i>Coverage:</i> All MS. Only NUTS 2 level for Italy. No data for French DOM. <i>Time series:</i> 1995-1998 on ESA95 basis. 1991-94 on ESA79 basis.	Cohesion.
5. Early school-leavers not in further education or training	Share of the population aged 18-24 with only lower secondary education and not in education or training.	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. <i>Time series:</i> 1992-2000 (Latest data 1997 for IRL and A)	Investing in people. Combating social exclusion.
6. Long-term unemployment rate	Total long-term unemployed (over 12 months) as a share of total active population – harmonised series.	Eurostat; based on Labour Force Survey.	<i>Coverage:</i> All MS except EL. Comparable data not available for the US and Japan. <i>Time series:</i> 1991-2000	Full employment. Combating social exclusion.

(V) ENVIRONMENT

Indicator	Definition	Source	Availability	Overall policy objective
1. Emissions of greenhouse gases	Aggregated emissions of 6 main greenhouse gases (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs and SF ₆) expressed in CO ₂ -equivalents.	European Environment Agency	<i>Coverage:</i> all MS. No data for US and Japan. <i>Time series:</i> 1991-99	Limit the climate change and implement the Kyoto Protocol.
2. Energy intensity of the economy	Gross inland consumption of energy divided by GDP	Eurostat; Energy Statistics.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-99.	Use energy more efficiently.
3. Volume of transport relative to GDP (freight and passengers)	Index of (freight and passenger) transport volume relative to GDP . Measured in tonne-km / GDP and passenger-km / GDP and indexed on 1995.	Eurostat / DG TREN / US Bureau of Transportation Statistics.	<i>Coverage:</i> all MS and US. Data for Japan expected for the synthesis report. <i>Time series:</i> Freight 1991-96; Passenger 1991-99	Decouple transport growth from economic growth.
4. Modal split of transport (freight and passengers)	Modal split in freight transport (between road and others: rail, inland navigation, pipelines, sea) and passenger transport (between road and air, and others: rail, water and public transport).	Eurostat / DG TREN / US Bureau of Transportation Statistics.	<i>Coverage:</i> all MS and US. Data for Japan expected for the synthesis report. <i>Time series:</i> Freight 1991-96; Passenger 1991-99	Progress towards more environmentally-friendly transport modes.
5. Urban air quality	Indicators based on the concentrations of ozone and particulates in urban areas (number of days of pollution exceeding standards for each of the two selected air pollutants).	European Topic Centre / Air Quality	<i>Coverage:</i> all MS, except Lux and S for ozone; and D, F, I, Lux, P and S for particulates. No data for US and Japan. <i>Time series:</i> 1991-99 (gaps are present)	Improve urban air quality.
6. Municipal waste	Municipal waste (collected, landfilled and incinerated). Measured in kg per person per year	Eurostat; Environment Statistics.	<i>Coverage:</i> all MS except A for collected; and EL, IRL and UK for incinerated. No data for US and Japan. Data for all MS expected by end of 2001. <i>Time series:</i> 1991-98 (gaps are present)	Decrease waste generation and harmful disposal.